Aug. 1, 1950 A. W. SEAMAN 2,517,358

BROACHING ATTACHMENT

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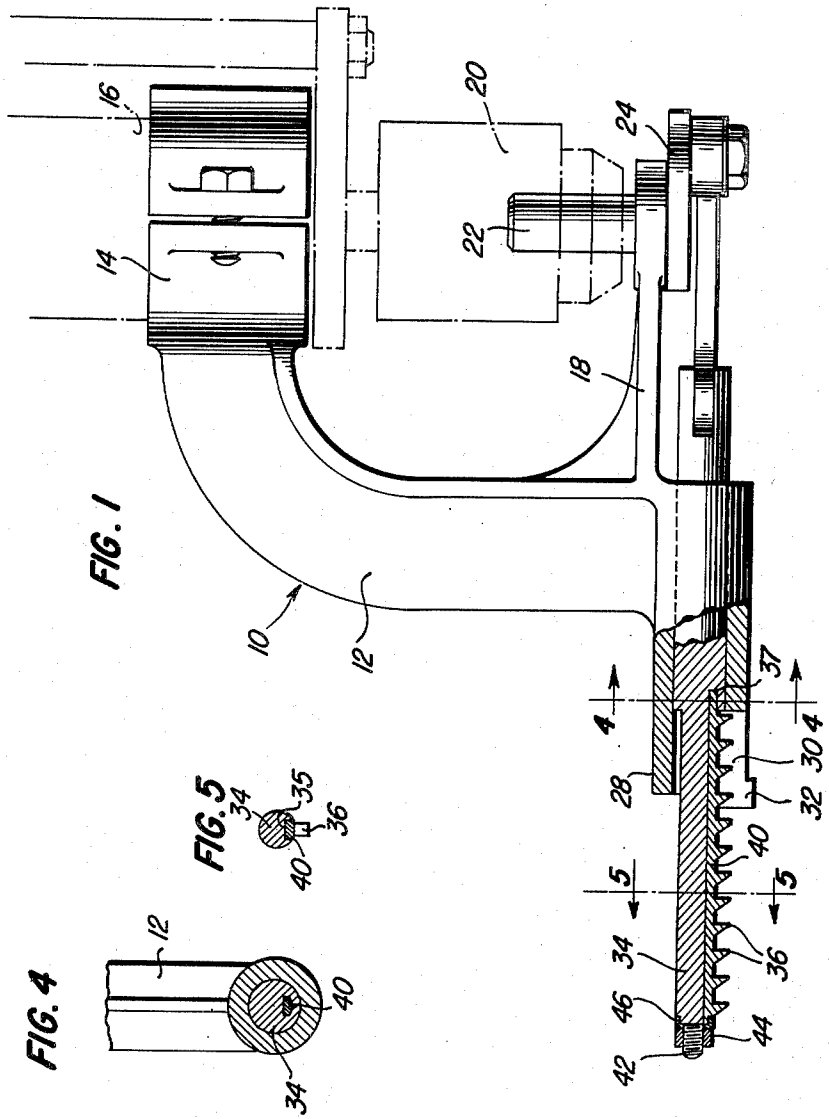


FIG. 1

FIG. 5

FIG. 4

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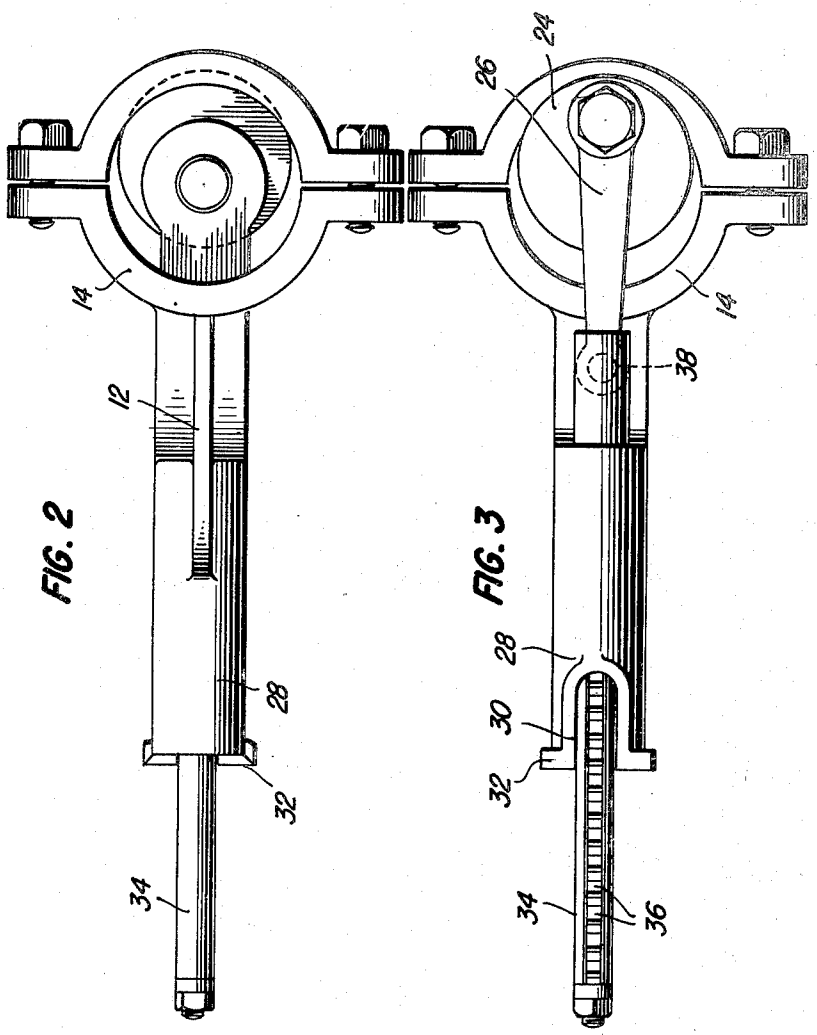
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BROACHING ATTACHMENT

Albert Wallace Seaman, Hutchinson, Kans.

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10 Claims. (Cl. 90—33)

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This invention relates to a novel and useful attachment for a drill press, and more specifically comprises a broaching and key seating attachment which may be readily supported by and associated with a conventional type of drill press and may be detachably driven thereby.

The principal objects of this invention are to provide a device which is readily engageable with a conventional type of drill press and which will enable the drill press to perform broaching and key seating operations; wherein a convenient and readily engageable form of driving connection is provided between the attachment and the drill chuck of the drill press; and wherein novel and efficient guiding means are provided for operatively supporting the broaching tool in the device.

These, together with various ancillary objects of the invention which will later become apparent as the following description proceeds, are realized by my invention, one embodiment of which has been illustrated by way of example only in the accompanying drawings, wherein:

Figure 1 is a side elevational view showing the attachment applied to a portion of a drill press;

Figure 2 is a top plan view of the attachment;

Figure 3 is a lower plan view of the attachment;

Figure 4 is a detail in vertical section taken substantially upon the section line 4—4 of Figure 1, and

Figure 5 is a detail view in vertical section being taken substantially upon the section line 5—5 of Figure 1.

Referring now more specifically to the annexed drawings, wherein like numerals designate similar parts throughout the several views, numeral 10 designates generally my improved attachment. As shown best in Figure 1, the attachment 10 comprises a right-angularly curved support member 12 having one end thereof terminating in a split clamp indicated at 14 and which is adapted to engage the vertical column 16 of a conventional type of drill press for detachably supporting the device thereon. The other end of the curved support member 12 is integrally formed with an arm 18 which extends substantially parallel to the clamping means 14, and is of sufficient length to be positioned to underlie the usual drill chuck 20 of the drill press. Journaled in the arm 18 is a crankshaft 22 which is adapted to be engaged detachably in the chuck socket 20 of the drill press and which is provided with a crank cheek 24 adapted to underlie and abut the lower surface of the arm 18, the crankshaft 22 detachably journaling a crank connecting rod 26 which engages a broaching tool in a manner to be later set forth.

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Adjacent the arm 18 and extending oppositely therefrom is a guide 28 integrally carried by the support member 12, and which, as shown best in Figure 4, is composed of a channel member of cylindrical cross-section and which is longitudinally slotted at its under-surface, as at 30. The outward end of the guide member 28 has a forwardly and downwardly depending lug 32 which is adapted to abut or provide a stop for a piece of work to be operated upon by the broaching or key seating tool. Slidably received within the guide member 28 is a broaching tool 34 of a cross-section conforming and corresponding to the internal surface of the guide, and provided at its lower surface and its outer extremity with teeth or the like 36. The rearward surface of the broaching tool 34 is pivoted, as at 38, to the outer end of the connecting rod 26.

As shown best in Figure 1, the tool 34 has a longitudinally extending channel 35 upon its lower side, which channel has an undercut portion 37 at its inner end. A detachable tool blade or bit 40 carrying the aforementioned teeth 36 is removably seated in the channel 35, with its rear end seated in the portion 37 for retaining engagement therein. The forward end of the tool 34 has a screw-threaded extension 42 upon which is threaded a nut 44 for securing a retaining cap 46. The latter has a flanged lip embracing the forward end of the tool blade 40 for securely fastening the latter in the channel 35.

From the foregoing, it is believed that the operation of the device will now be apparent. The support 12 is attached in a depending position from the vertical housing 16 of a conventional drill press, by means of the clamp 14, it being understood that the latter will accommodate the device to various sizes of drill press housings. The crank 22 is now inserted in the arm 18 and into the drill press socket 20 and is secured thereto in a conventional manner. Upon rotation of the drill press chuck 20, the connecting rod 26 causes reciprocation of the broaching tool shank 34 in the guide socket 28, whereby the teeth 36 may be specifically designed to perform a particular type of work, such as broaching, key seating, sawing, or the like, and that the channel 35 and blade 40 as well as the guide 28 and tool 34 may be of any desired shape.

In view of the foregoing description taken in conjunction with the accompanying drawings, it is believed that a clear understanding of the

construction, operation and advantages of the device will be quite apparent to those skilled in this art. A more detailed description is accordingly deemed unnecessary.

It is to be understood, however, that even though I have herein shown and described a preferred embodiment of my invention that the same is susceptible to certain changes fully comprehended by the spirit of the invention as herein described and within the scope of the appended claims.

I claim as my invention:

1. A broaching attachment for drill presses including a one-piece support, a clamp for securing said support upon the vertical column of a drill press, a crank journaled in said support and engageable with the drill chuck of a drill press, a guide carried by said support, a broaching tool slidable in said guide and a connecting rod pivoted to said crank and to said broaching tool.

2. A broaching attachment for drill presses including a one-piece support, a clamp for securing said support upon the vertical column of a drill press, a crank journaled in said support and engageable with the drill chuck of a drill press, a guide carried by said support, a broaching tool slidable in said guide and a connecting rod pivoted to said crank and to said broaching tool, said guide being of circular cross-section and said broaching tool having a body guide portion of circular cross-section slidable longitudinally in said guide.

3. A broaching attachment for drill presses including a one-piece support, a clamp for securing said support upon the vertical column of a drill press, a crank journaled in said support and engageable with the drill chuck of a drill press, a guide carried by said support, a broaching tool slidable in said guide and a connecting rod pivoted to said crank and to said broaching tool, said support having an arm extending oppositely to said guide and parallel to said clamp and adapted to underlie the drill chuck of a drill press, said crank being journaled in said arm and having a cheek bearing upon the under-side of said arm.

4. A broaching attachment for drill presses including a one-piece support, a clamp for securing said support upon the vertical column of a drill press, a crank journaled in said support and engageable with the drill chuck of a drill press, a guide carried by said support, a broaching tool slidable in said guide and a connecting rod pivoted to said crank and to said broaching tool, said guide being of circular cross-section and said broaching tool having a body guide portion of circular cross-section slidable longitudinally in said guide, said guide consisting of a channel member having a longitudinal slot along one side thereof.

5. A broaching attachment for drill presses including a one-piece support, a clamp for securing said support upon the vertical column of a drill press, a crank journaled in said support and engageable with the drill chuck of a drill press, a guide carried by said support, a broaching tool slidable in said guide and a connecting rod pivoted to said crank and to said broaching tool, said broaching tool having a tool blade receiving channel in its lower surface and a tool blade removably secured in said channel.

6. A broaching attachment for drill presses including a one-piece support, a clamp for securing said support upon the vertical column of a drill press, a crank journaled in said support and engageable with the drill chuck of a drill press, a guide carried by said support, a broaching tool slidable in said guide and a connecting rod pivoted to said crank and to said broaching tool, said broaching tool having a tool blade receiving channel in its lower surface and a tool blade removably secured in said channel, said tool blade having one end secured in an axial recess in an end of said channel and the other end secured by a detachable cap at the other end of said channel.

7. In a drill press having a vertical column, a rotary shaft in the column and a chuck carried by the shaft; a broaching attachment comprising an arcuate support, a clamp carried at one end of said support for securing the latter upon the vertical column, a tubular guide extending from the other end of said support, an arm carried by the other end of said support and extending in an opposite direction to said guide, a bearing at the end of said arm coaxial with said clamp, a crank journaled in said bearing and engageable with the chuck, a broaching tool slidable in said guide, and a connecting rod pivoted to said crank and to said broaching tool.

8. The combination of claim 7 wherein said crank includes a cheek engaging the underside of said bearing.

9. The combination of claim 7 wherein said guide includes a longitudinal slot along one side thereof and said broaching tool includes teeth extending through said slot.

10. The combination of claim 9 wherein said guide includes a depending stop at its free end adapted to abut a piece of work to be operated upon by said broaching tool.

ALBERT WALLACE SEAMAN.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
678,341	Holmberg	July 9, 1901
1,366,005	Jansson	Jan. 18, 1921
1,367,680	Allen	Feb. 8, 1921
1,502,088	Colby	July 22, 1924